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## NOTICE OF ALLOWANCE AND FEE(S) DUE

21839 7590 06/22/2009

BUCHANAN, INGERSOLL & ROONEY PC  
POST OFFICE BOX 1404  
ALEXANDRIA, VA 22313-1404

EXAMINER

TSAI, TSUNG YIN

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 06/22/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/733,388

12/12/2003

Young-Sik Huh

030681-607

8513

TITLE OF INVENTION: METHOD AND APPARATUS FOR GENERATING USER PREFERENCE DATA REGARDING COLOR CHARACTERISTIC OF IMAGE AND METHOD AND APPARATUS FOR CONVERTING IMAGE COLOR PREFERENCE USING THE METHOD AND APPARATUS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	09/22/2009

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

21839 7590 06/22/2009

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## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/733,388 12/12/2003 Young-Sik Huh 030681-607 8513

TITLE OF INVENTION: METHOD AND APPARATUS FOR GENERATING USER PREFERENCE DATA REGARDING COLOR CHARACTERISTIC OF IMAGE AND METHOD AND APPARATUS FOR CONVERTING IMAGE COLOR PREFERENCE USING THE METHOD AND APPARATUS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 09/22/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
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TSAI, TSUNG YIN 2624 382-162000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_
- 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/733,388	12/12/2003	Young-Sik Huh	030681-607	8513
21839	7590	06/22/2009	EXAMINER	
TSAI, TSUNG YIN				
ART UNIT		PAPER NUMBER		
2624				
DATE MAILED: 06/22/2009				

BUCHANAN, INGERSOLL & ROONEY PC  
POST OFFICE BOX 1404  
ALEXANDRIA, VA 22313-1404

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 745 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 745 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/733,388	HUH ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	TSUNG-YIN TSAI	2624	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/28/2009.
2. ☒ The allowed claim(s) is/are 1, 3-21, 23-25, 27-33, 43-45 and 47 ( re-number as 1-34).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date <u>5/20/2009 and 10/7/2008</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                                  | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

Tsung-Yin Tsai  
Examiner  
Art Unit: 2624



**Allowance**

***Specification***

1. Please replace amended abstract dated 12/05/07 with the attached amended Abstract.
2. The amended Abstract dated 12/5/2007 is provided on a separate sheet.

***Request for Continued Examination***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 5/20/2009 has been entered.

***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 5/20/2009 was filed after the mailing date of the Allowance on 4/15/2009. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.
3. IDS submitted on 10/7/2008 has been taken into consideration.

***EXAMINER'S AMENDMENT***

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Charles Wieland (Reg# 33,096) on 4/7/2009.

**Examiner's Amendment is the same as the one that was mailed out on 4/15/2009 and the same agreement with applicant's interview on 4/7/2009.**

**The following are the same agreed amendment claim language as those agree upon on the interview with the applicant on 4/7/2009.**

The application has been amended as follows:

**The following is an amendment of claim 1:**

1. (Currently amended) A method for generating user preference data regarding a color characteristic of a reference image, wherein a preference image comprises the reference image converted to have a color characteristic that a user prefers, and a preference value comprises a color characteristic value of the preference image and a

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reference value comprises a color characteristic value of the reference image, the method comprising:

(a) generating a characteristic value pair, wherein the characteristic value pair includes preference value data and reference value data, which corresponds to a pair of the preference value and the reference value; and

(b) generating preference meta-data having at least one feature block for the characteristic value pair, wherein the feature block comprises:

a block header including a feature identifier corresponding to information identifying a color characteristic and a Bin number indicating a quantization level of the characteristic value, the color characteristic being at least one of color temperature, brightness, contrast, and saturation, wherein when the color characteristic includes contrast, a contrast value is determined as a standard deviation of luminance values of all pixels in the image to be displayed; and

at least one feature descriptor including the preference value and the reference value as values of the identified color characteristic for the preference image and the reference image, respectively,

wherein said method is carried by a computer.

**The following is an amendment of claim 3:**

3. (Currently amended) The method of claim 1, before step (a), further comprising:

providing a plurality of images having different color characteristic values with

respect to a predetermined image; and

setting an image that the user has selected from the plurality of images as a preference image, setting an original image with respect to the preference image as a reference image, and generating preference image data and reference image data, which corresponds to a pair of the preference image and the reference image.

**The following is an amendment of claim 4:**

4. (Currently amended) The method of claim 1, before step (a), further comprising:

installing a unit for controlling a color characteristic of an image in an image display device; and

setting an image of which color characteristic is adjusted by a user using the unit for controlling a color characteristic, as a preference image, setting an original image of which color characteristic is not adjusted by the user, as a reference image, and generating preference image data and reference image data, which corresponds to a pair of the preference image and the reference image.

**The following is an amendment of claim 5:**

5. (Currently Amended) The method of claim 3, wherein the generating preference image data and reference image data includes, when the reference image has a contents identifier, generating preference image data, reference image data, and

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contents identifier data, wherein the contents identifier data, correspond to a combination of the preference image, the reference image, and contents identifier information.

**The following is an amendment of claim 6:**

**6. (Currently amended)** The method of claim 4, wherein the generating preference image data and reference image data includes, when the reference image has a contents identifier, generating preference image data, reference image data, and contents identifier data, wherein the contents identifier data, correspond to a combination of the preference image, the reference image, and contents identifier information.

**The following is an amendment of claim 7:**

**7. (Currently amended)** The method of claim 1, wherein in step (a), when the reference image has a contents identifier and when a color characteristic value of the preference image is referred to as a preference value and a color characteristic value of the reference image is referred to as a reference value, generating preference value data, reference value data and contents identifier data, wherein the contents identifier data, correspond to a combination of the preference value, the reference value, and the contents identifier.

**The following is an amendment of claim 10:**

10. (Currently amended) A method for generating user preference data regarding a color characteristic of an image, wherein a preference image comprises an image converted to have a color characteristic that a user prefers with respect to a predetermined reference image, a preference value comprises a color characteristic value of the preference image and a reference value comprises a color characteristic value of the reference image, the method comprising:

(a) generating a characteristic value pair preference value data and reference value data, which correspond to a pair of the preference value and the reference value; and

(b) generating preference meta-data having at least one feature block for the characteristic value pair, wherein the feature block comprises:

a block header including a feature identifier corresponding to information identifying a color characteristic, the color characteristic being at least one of color temperature, brightness, contrast, and saturation, wherein the saturation value is obtained by the following steps comprising:

obtaining saturation of each pixel in a HSV color space from an RGB value of a pixel in the image, the saturation of the pixel being determined by the following steps comprising:

obtaining maximum and minimum values of the RGB value of the pixel, and  
when the maximum value is equal to 0, setting the saturation of a corresponding pixel to 0, and when the maximum value is not equal to 0, setting a value obtained by

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dividing a difference between the maximum value and the minimum value by the maximum value, as the saturation of a corresponding pixel, and

generating a value obtained by adding saturation of the pixels and dividing the added saturation by the number of pixels, as a saturation value; and

at least one feature descriptor including the preference value and the reference value as values of the identified color characteristic for the preference image and the reference image, respectively,

wherein said method is carried by a computer.

**The following is an amendment of claim 13:**

13. (Currently amended) A method for generating user preference data regarding a color characteristic of an image, wherein a preference image comprises an image converted to have a color characteristic that a user prefers with respect to a predetermined reference image, a preference value comprises a color characteristic value of the preference image and a reference value comprises a color characteristic value of the reference image, the method comprising:

(a) generating a characteristic value pair, wherein the characteristic value pair includes preference value data and reference value data, which correspond to a pair of the preference value and the reference value; and

(b) generating preference meta-data having at least one feature block for the characteristic value pair, wherein the feature block comprises:

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a block header including a feature identifier corresponding to information identifying a color characteristic, the color characteristic being at least one of color temperature, brightness, contrast, and saturation, wherein a contrast value CV is, when  $Y_x$  is luminance of each pixel in the image and  $NumberOfPixels$  is the number of pixels in the image, determined using the following equation:

$$CV = \sqrt{\left[ \sum_{x \in (pixels)} (Y_x - BV)^2 \right] / NumberOfPixels} ; \text{ and}$$

at least one feature descriptor including the preference value and the reference value as values of the identified color characteristic for the preference image and the reference image, respectively,

wherein said method is carried by a computer.

**The following is an amendment of claim 14:**

14. (Currently amended) The method of claim 1, wherein step (a) further comprises,

when preference value data and reference value data exists before preference value data and reference value data in step (a) is generated, comparing the preference value data and reference value data generated in step (a) with an existing pair preference value data and reference value data and updating the preference value data and reference value data,

wherein the updating is, with respect to one preference value, when the reference value generated in step (a) is compared with the existing reference value and

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is the same as or similar to the existing reference value, removing the existing reference value.

**The following is an amendment of claim 15:**

15. (Currently amended) The method of claim 7, wherein step (b) further comprising,

when preference value data and reference value data exists before preference value data and reference value data in step (b) is generated, comparing the preference value data and reference value data generated in step (b) with an existing preference value and reference value and updating the preference value data and reference value data,

wherein the updating is, with respect to one preference value, when the reference value generated in step (b) is compared with the existing reference value and is the same as or similar to the existing reference value, removing the existing reference value.

**The following is an amendment of claim 21:**

21. (Currently amended) An apparatus for generating user preference data regarding a color characteristic of a reference image, wherein a preference image comprises the reference image converted to have a color characteristic that a user prefers a preference value comprises a color characteristic value of the preference

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image and a reference value comprises a color characteristic value of the reference image, the apparatus comprising:

- a color characteristic calculating unit, which obtains an image color characteristic value of the preference image and the reference image, and generates a characteristic value pair wherein the characteristic value pair includes preference value data and reference value data which corresponds to a pair of the preference value and the reference value; and

- a meta-data generating unit, which generates preference meta-data having at least one feature block for the preference value data and reference value data generated in the color characteristic calculating unit, wherein the feature block comprises:

- a block header including a feature identifier corresponding to information identifying a color characteristic and a Bin number indicating a quantization level of the characteristic value, the color characteristic being at least one of color temperature, brightness, contrast, and saturation, wherein a contrast value is determined as a standard deviation of luminance values of all pixels in the image to be displayed; and

- at least one feature descriptor including the preference value and the reference value as values of the identified color characteristic for the preference image and the reference image, respectively.

**The following is an amendment of claim 23:**

23. (Currently amended) The apparatus of claim 21, further comprising a first sample image obtaining unit, which sets an image that the user has selected from a plurality of images having different color characteristic values with respect to a predetermined image, sets an original image with respect to the preference image as a reference image, generates preference image data and reference image data which correspond to a pair of the preference image and the reference image, and outputs the pair to the color characteristic calculating unit.

**The following is an amendment of claim 24:**

24. (Currently amended) The apparatus of claim 21, further comprising a second sample image obtaining unit, which, when a unit for controlling a color characteristic of an image is installed in an image display device, sets an image of which color characteristic is adjusted by a user using the unit for controlling a color characteristic, as a preference image, sets an original image of which color characteristic is not adjusted by the user, as a reference image, generates preference image data and reference image data, which correspond to a pair of the preference image and the reference image, and outputs the pair to the color characteristic calculating unit.

**The following is an amendment of claim 25:**

25. (Currently amended) The apparatus of claim 23, wherein the generating preference image data and reference image data is, when the reference image has a contents identifier, generating preference image data, reference image data and

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contents identifier data, wherein the contents identifier data correspond to a combination of the preference image, the reference image, and contents identifier information.

**The following is an amendment of claim 28:**

28. (Currently amended) An apparatus for generating user preference data regarding a color characteristic of an image, wherein a preference image comprises an image converted to have a color characteristic that a user prefers with respect to a predetermined reference image, a preference value comprises a color characteristic value of the preference image and a reference value comprises a color characteristic value of the reference image, the apparatus comprising:

a color characteristic calculating unit, which obtains an image color characteristic value of the preference image and the reference image, and generates a characteristic value pair preference value data and reference value data, which correspond to a pair of the preference value and the reference value,

wherein the color characteristic calculating unit comprises a saturation value calculating portion, which obtains saturation of each pixel in a HSV color space from an RGB value of a pixel in the image and generates a value obtained by adding saturation of the pixels and dividing the added saturation by the number of pixels, as a saturation value, and

wherein the saturation of the pixel is determined by the following steps comprising:

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obtaining maximum and minimum values of the RGB value of the pixel, and  
when the maximum value is equal to 0, setting the saturation of a corresponding pixel to 0, and when the maximum value is not equal to 0, setting a value obtained by dividing a difference between the maximum value and the minimum value by the maximum value, as the saturation of a corresponding pixel; and

a meta-data generating unit, which generates preference meta-data having at least one feature block for the preference value data and reference value data generated in the color characteristic calculating unit, wherein the feature block comprises:

a block header including a feature identifier corresponding to information identifying a color characteristic, the color characteristic being at least one of color temperature, brightness, contrast, and saturation, and

at least one feature descriptor including the preference value and the reference value as values of the identified color characteristic for the preference image and the reference image, respectively.

**The following is an amendment of claim 30:**

30. (Currently amended) An apparatus for generating user preference data regarding a color characteristic of an image, wherein a preference image comprises an image converted to have a color characteristic that a user prefers with respect to a predetermined reference image, a preference value comprises a color characteristic

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value of the preference image and a reference value comprises a color characteristic value of the reference image, the apparatus comprising:

a color characteristic calculating unit, which obtains an image color characteristic value of the preference image and the reference image, and generates a characteristic value pair, wherein the characteristic value pair includes preference value data and reference value data which correspond to a pair of the preference value and the reference value,

wherein the color characteristic calculating unit comprises a contrast value calculating portion, which, when  $Y_x$  is luminance of each pixel in the image and  $NumberOfPixels$  is the number of pixels in the image, calculates a contrast value determined using the following equation:

$$CV = \sqrt{\left[ \sum_{x \in (pixels)} (Y_x - BV)^2 \right] / NumberOfPixels} ; \text{ and}$$

a meta-data generating unit, which generates preference meta-data having at least one feature block for the pair preference value data and reference value data generated in the color characteristic calculating unit, wherein the feature block comprises:

a block header including a feature identifier corresponding to information identifying a color characteristic, the color characteristic being at least one of color temperature, brightness, contrast, and saturation; and

at least one feature descriptor including the preference value and the reference value as values of the identified color characteristic for the preference image and the reference image, respectively.

**The following is an amendment of claim 31:**

31. (Currently amended) The apparatus of claim 21, further comprising a meta-data updating unit, which compares the preference value data and reference value data generated in the color characteristic calculating unit with an existing preference value and reference value data, updates the preference value data and reference value data, and outputs the pair to the meta-data generating unit,

wherein the updating is, with respect to one preference value, when the reference value generated in step (b) is compared with the existing reference value and is the same as or similar to the existing reference value, removing the existing reference value, and the updating is, when quantization levels of the two reference values are different, converting a value of high level into a value of low level and comparing with each other, and when image contents identifiers are added to the characteristic value pairs, even though the two reference values are the same as or similar to each other, if the image contents identifiers are different, without removing the existing reference value.

**The following is an amendment of claim 43:**

43. (Currently amended) An image preference data recording medium on which is recorded preference meta-data for a generated characteristic value pair preference value data and reference value data which correspond to a pair of a preference value and a reference value, wherein a preference image comprises a reference image converted to have a color characteristic that a user prefers, the reference image

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comprises the predetermined image, the preference value comprises a color characteristic value of the preference image, and the reference value comprises a color characteristic value of the reference image, the preference meta-data having at least one feature block, the feature block comprising:

a block header including a feature identifier corresponding to information identifying a color characteristic and a Bin number indicating a quantization level of the characteristic value, the color characteristic being at least one of color temperature, brightness, contrast, and saturation, wherein a contrast value is determined as a standard deviation of luminance values of all pixels in the image to be displayed; and

at least one feature descriptor including the preference value and the reference value as values of the identified color characteristic for the preference image and the reference image, respectively.

**The following is an amendment of claim 45:**

45. (Currently amended) A computer readable recording media on which a program code is recorded to execute the method of claim 1.

**The following is an amendment of claim 47:**

47. (Currently amended) The apparatus of claim 25, wherein the color characteristic calculating unit, when the reference image has a contents identifier, further comprises a contents identifier in the preference value data and reference value

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data and generates a combination preference value data, reference value data and contents identifier data.

### **Reason for Allowance**

2. The following is an examiner's statement of reasons for allowance:

Regarding claims 1, 10, 13, 21, 28, 30, 43 and 45, and all dependent claims, closest art of record do not disclose all limitations. Specifically,

- Gu (US 5,874,988) discloses system and methods for automated color correction.
- Reuman (US 6,069,982) discloses estimation of frequency dependence and grey-level dependence of noise in an image.
- Pettigrew et al (US 2001/0028736) discloses processing image data.

However, none of the above-cited references, alone or in combination, discloses, teach or suggest iteratively determining and adjustment value from selective values that have a periodical relation with an earlier-determined adjustment value.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claims 1, 3-21, 23-25, 27-33, 43-45 and 47 (renumbered as 1-34) are allowed.

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### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TSUNG-YIN TSAI whose telephone number is (571)270-1671. The examiner can normally be reached on Monday - Friday 8 am - 5 pm ESP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on (571)272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tsung-Yin Tsai/

Examiner, Art Unit 2624

May 29, 2009

/Samir A. Ahmed/

Supervisory Patent Examiner, Art Unit 2624